

Rediscovery of *Thoressa pedla* (EVANS, 1957) and *Thoressa yingqii* HUANG, 2011

(Lepidoptera: Hesperiidae)

by

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Abstract: The very little known *Thoressa pedla* (EVANS, 1957) and *Thoressa yingqii* HUANG, 2011, both described, basing on 1 ♂ only, are rediscovered in both sexes. The distributional range of *T. pedla pedla* (EVANS) is clarified as the southern part of the Gaoligongshan Mts. *Thoressa pedla hishikawai* YOSHINO, 2013 stat. nov. is considered as a good subspecies restricted to valleys of the Mekong and the Yangtse, NW Yunnan. *Thoressa yingqii* HUANG, 2011 is reported from Fengxian, Shaanxi and Huxian, Gansu, in addition to the type locality.

Introduction: Unexpectedly, the junior author collected a small series of *Thoressa* SWINHOE specimens from Tengchong, western Yunnan belonging to the very little known *Thoressa pedla* (EVANS, 1957), which was originally described based on a single ♂ from „Yunnan“ with the exact locality unknown. It became clear that the senior author's (HUANG, 2011) taxonomic treatment for *Thoressa hishikawai* YOSHINO, 2003 as a synonym of *T. pedla* (EVANS) was wrong. Though a comparison in ♂ genitalia supports these two taxa to be conspecific, they are externally different in both sexes and distributed in different ranges. Thus it is more appropriate to treat *T. hishikawai* YOSHINO as a distinct subspecies of *T. pedla* (EVANS). *Thoressa yingqii* HUANG, 2011 was described on a single ♂ specimen too. A small number of specimens in both sexes were recently collected by the authors from Shaanxi and Gansu. Thus it is worthy being reported in details for the individual variation and sexual dimorphism. The senior author (HUANG, 2011) overlooked the description of *T. maculata* FAN & WANG, 2010 from Guangxi when he described his *T. yingqii* HUANG, so that a short discussion on the former is necessary herein. Judging from the wing-pattern and the ♂ genitalia, it can be sure that *T. maculata* FAN & WANG, is very closely related to *T. hyrie* (DE NICÉVILLE, 1891). The first author examined two ♂♂ of *T. hyrie* (DE NICÉVILLE) from SE Tibet and 2 ♂♂ of *T. maculata* FAN & WANG, from Guangxi for a comparison, and found that the two species have significant difference in size of juxta, length of harpe („cuiller“ sensu EVANS, 1949) and comparative size of tegumen in proportion to size of valva, in addition to the difference in the uncus arms mentioned by FAN & WANG (2010). Therefore *T. maculata* FAN & WANG, should be regarded as a bona species, which however does nothing with *T. yingqii* HUANG. FAN & WANG (2010) insisted that the genus *Pedesta* HEMMING, 1934 (= *Pedestes* WATSON, 1893, preoccupied and invalid, type species: *Isoteinon masuriensis* MOORE, 1878) in sense of EVANS (1949) is separable from the genus *Thoressa* SWINHOE, 1913 (type species: *Pamphila masoni* MOORE, [1879]) by having antennal apiculus obtuse and blunt, forewing cell spots present and ♂ genitalia without socius (= lateral process of tegumen, sensu EVANS, 1949). However, a close examination of ♂ genitalia shows that *T. baileyi* (SOUTH, 1913), *T. serena* (EVANS, 1937) and *T. pandita* (NAN & WANG, 1885) treated by EVANS (1949) as species of *Pedestes* WATSON (= *Pedesta* HEMMING) all possess a pair of short socii. The presence or absence of cell spots can be individually variable in a single species, such as *T. fusca* (ELWES, [893]) and *T. gupta* (DE NICÉVILLE, 1886). Thus only the shape of antennal apiculus seems to remain as the sole diagnostic character to separate *Pedesta* HEMMING (sensu EVANS 1949) from *Thoressa* SWINHOE (sensu EVANS, 1949). However, *T. yingqii* HUANG, 2011 lacks socius but possesses a very slender antennal apiculus; it breaks the boundary between *Pedesta* HEMMING (sensu EVANS, 1949) and *Thoressa* SWINHOE (sensu EVANS, 1949).

Though a phylogenetic analysis has not been made, it can be sure that *Pedesta* HEMMING (sensu EVANS, 1949) is not monophyletic because of the following observations. Some of the *Thoressa* SWINHOE species in sense of EVANS (1949) or FAN & WANG (2010), such as *T. maculata* FAN & WANG have some important characters in common with all species of *Pedesta* HEMMING (sensu EVANS, 1949), such as the very peculiar conical juxta which may provide a potential synapomorphy for a certain species group; species in both genera (sensu EVANS, 1949) sharing such peculiar conical juxta are apparently more in common with one another in most characters than with *Thoressa varia* (MURRAY, 1857) and *T. submacula* (LEECH, 1890). Moreover, *T. baileyi* (SOUTH) treated as species of *Pedestes* WATSON (= *Pedesta* HEMMING) by EVANS (1949), shares most of the genital and external characters including a very peculiar gnathos with both *T. gupta* (DE NICÉVILLE) and *T. fusca* (ELWES), it is not reasonable to separate these similar species into different genera, using the sole character in antennal apiculus. Nevertheless, it is more reasonable to suspect that *Thoressa* SWINHOE plus *Pedesta* HEMMING constitute a monophly and it is at best to include all species of these two genera into a single genus temporarily. As a conclusion, *Pedesta* HEMMING is not worth being retained as a valid genus.

Taxonomic accounts

Thoressa pedla pedla (EVANS, 1957) (figs. 1-7, 18)

Pedestes pedla EVANS, 1957, Ann. Mag. Nat. Hist. (series 12) 9: 751; TL: Yunnan.

Thoressa pedla: HUANG, 2011: 196, fig. 9.

Material: Yunnan: 2♂♂, 1♀ (CWCH), Baoshan City, Tengchong County, Houqiao, ca 1800 m, 17.V.2014, C.-H. WANG leg.

♀ length of forewing 12.5 mm. Antenna as in ♂. Forewing with a shorter termen than that of ♂. Hindwing with a longer costa than that of ♂. Nearly all markings and colorings on both sides of both wings exactly as those of ♂, except for the absence of androconial patches on forewing upperside and the more blackish underside ground color in the basal two third of forewing.

♂ genitalia (fig. 18). Uncus widely bifurcate, with inner margin of each branch straight, and with outer margin of each branch strongly curved near middle. Gnathos pigmented at lateral sides but non-pigmented at middle, with lateral borders well beyond uncus and visible in dorsal view. Socius absent. Juxta conical. Aedeagus with vesica opened on dorsal surface, and with no cornutus; coecum aedeagi in dorsal view with lateral wings. Valvae nearly symmetrical; footstalk simple and pointed posteriorly, without serration; harpe nearly triangular in lateral view, with distal border a little curved inwards.

Remarks: The most striking wing-character for this taxon is the yellow ground color of hindwing underside marked by a series of obscure brownish spots. Such peculiar wing-pattern of hindwing underside found in holotype of *T. pedla* (EVANS) was considered by the senior author (HUANG, 2011) as an abnormal condition since no such markings had been found in any other species of *Thoressa* SWINHOE. However, the newly collected specimens from Tengchong all have such peculiar wing-pattern on hindwing underside, makes it clear that the holotype belongs to a common form of this taxon. As discussed below, this taxon has no difference from *Thoressa pedla hishikawai* YOSHINO in ♂ genitalia.

Distribution: Tengchong only, W Yunnan.

***Thoressa pedla hishikawai* YOSHINO, 2003 stat. n. (Figs. 8–15, 19)**

Pedesta hishikawai YOSHINO, 2003, *Futao* **43**: 9, figs. 25, 27 for ♂, fig. 37 for ♂ genitalia; TL: Zhongdian; HUANG, 2011: 196, incorrect synonymy for *Thoressa pedla* (EVANS).

Thoressa hishikawai: HUANG & ZHAN, 2004: 180.

Thoressa pedla: HUANG, 2011: 196, partim, figs. 10–13, 18–19. Misidentification.

Material: Yunnan: 2♂♂, 1♀ (CHH, CCAM), Lijiang City, Ludian, 2600 m, 28.IV.1995, A.-M. CHEN leg.; 1♂ (CHH), Zhongdian, Xiaozhongdian, 3000 m, 4.VII.1995, A.-M. CHEN leg.; 1♂ (CWCH), on road from Ludian to Weixi, ca 3000 m, V.2014, C.-H. WANG leg.

Remarks: As here figured, the ♂ genitalia of *Thoressa pedla hishikawai* YOSHINO are in common with those of *Thoressa pedla pedla* (EVANS). The following genital characters are generally considered as important in specific division for the genus: shape of uncus, shape and pigment of gnathos, shape of footstalk, shape of harpe, size of juxta, and some details in aedeagus. There is no difference in all these characters between the above-mentioned two taxa, thus it is reasonable to treat them as conspecific. The constant difference in wing-pattern of hindwing underside supports *Thoressa pedla hishikawai* YOSHINO to be a distinct subspecies.

***Thoressa yingqii* HUANG, 2011 (Figs. 16–17, 20)**

Atalanta **42**: 194, figs. 1, 17; TL: Houzhenzi, Zhouzhi, Shaanxi.

Material: Shaanxi: 3♂♂, 1♀ (CWCH, CHH), Baoji City, Fengxian, Yindongxia, 1300 m, 5.VI.2009, C.-H. WANG leg.; 1♂ (CWCH), Zhouzhi County, Houzhenzi, 1300 m, 10.VI.2010. Gansu: 1♀ (CHH), Longnan City, Huixian, 1300 m, 19.VI.2015, H. HUANG leg.

Individual variations of ♂: It becomes clear that the holotype is a less marked form with all markings reduced than usual. The following individual variations are found in the newly collected ♂♂: the two cell spots on both sides of forewing can be well separated or conjoined; forewing discal spots can be markedly larger than those of holotype, but always widely separated from each other and not overlapping; subapical spots can be three in number; hindwing underside can be entirely yellow and unmarked as in holotype, or with pale spots in spaces 3, 4 & 6.

The inner ciliae are dark gray on both sides of both wings. The outer ciliae of forewing are white between veins and chequered with dark gray around veins on both upper and under sides. The outer ciliae of hindwing are all white and not chequered on both upper and under sides.

One ♀ was collected together with the ♂ specimens from Fengxian, Shaanxi by the first junior author. Another ♀ collected by the first author from Gansu shares all the important characters with the foregoing ♀ thus is identified as the same species. Compared with ♂, the following ♀ characters are noticed: forewing with markedly shorter termen; hindwing with a longer costa, a shorter termen and a more obtuse tornus; all pale spots on both sides of forewing larger; forewing with an additional spot in space 1b on both upper and under sides; forewing cell spots always conjoined and directed to outer half of dorsum.

The ciliae and wing-pattern on hindwing underside are as those of ♂♂. Hindwing underside of ♀ can be entirely yellow or marked with three pale spots in spaces 3, 4 & 6.

Remarks: A dissection of more ♂♂ proved that the genital characters originally described on the unique holotype are constant. Only the following individual variation is noticed: right footstalk is variable in shape, but is always in big size and serrate.

It should be noted that *T. yingqii* HUANG has no socius in ♂ genitalia as in type species of *Pedesta* HEMMING, but bears a more slender and more sharply pointed antennal apiculus than in *Thoressa maculata* FAN & WANG.

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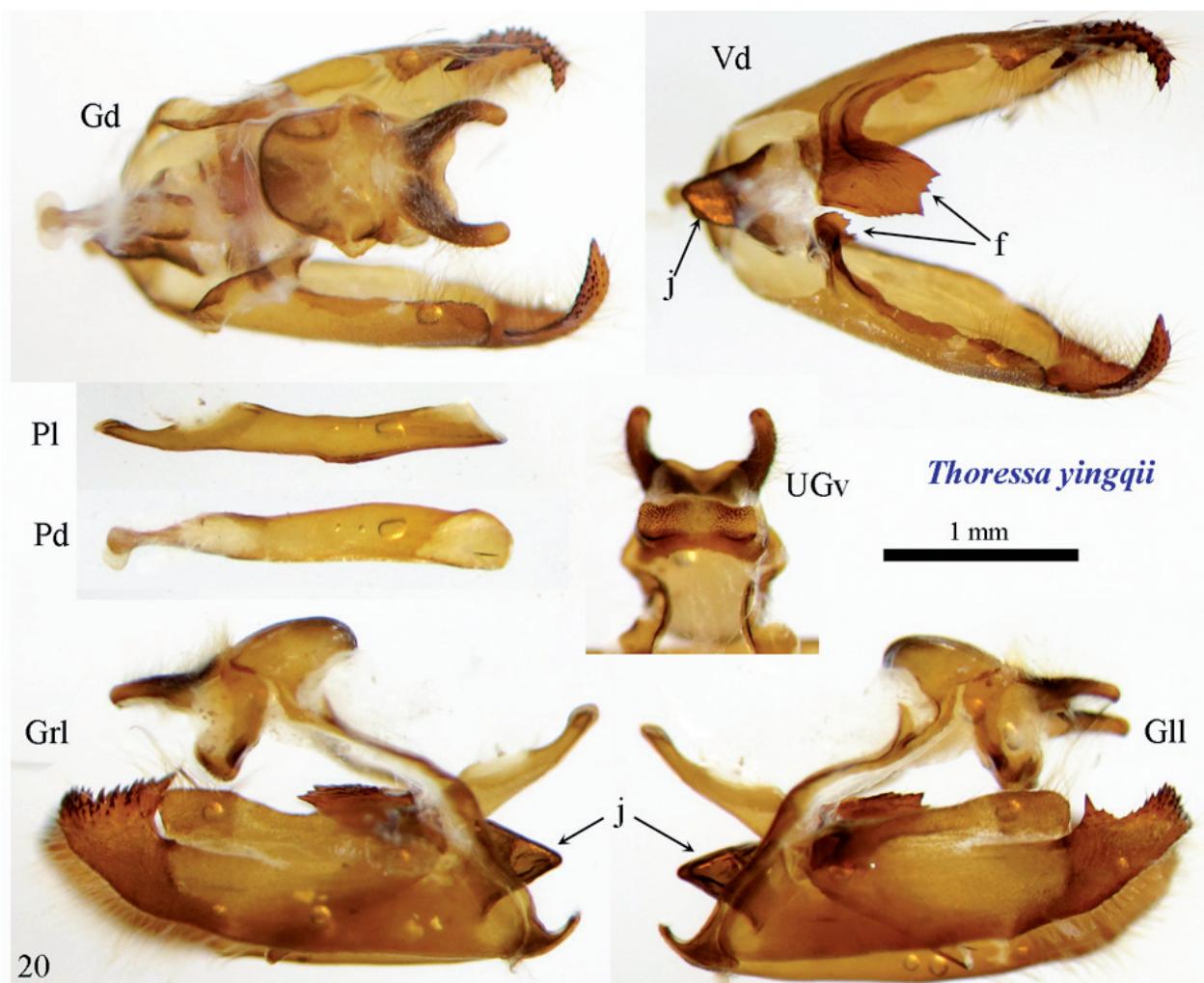
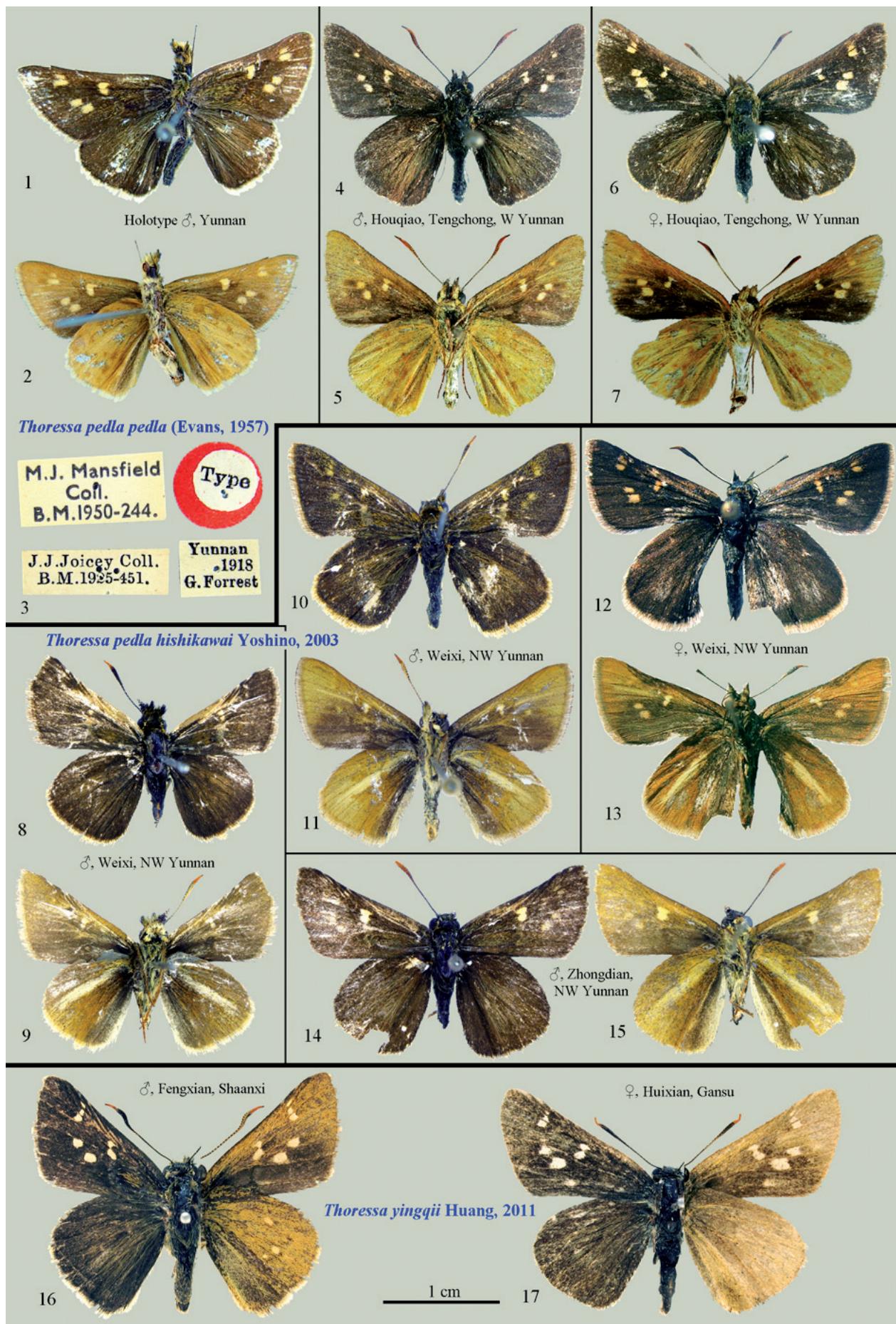
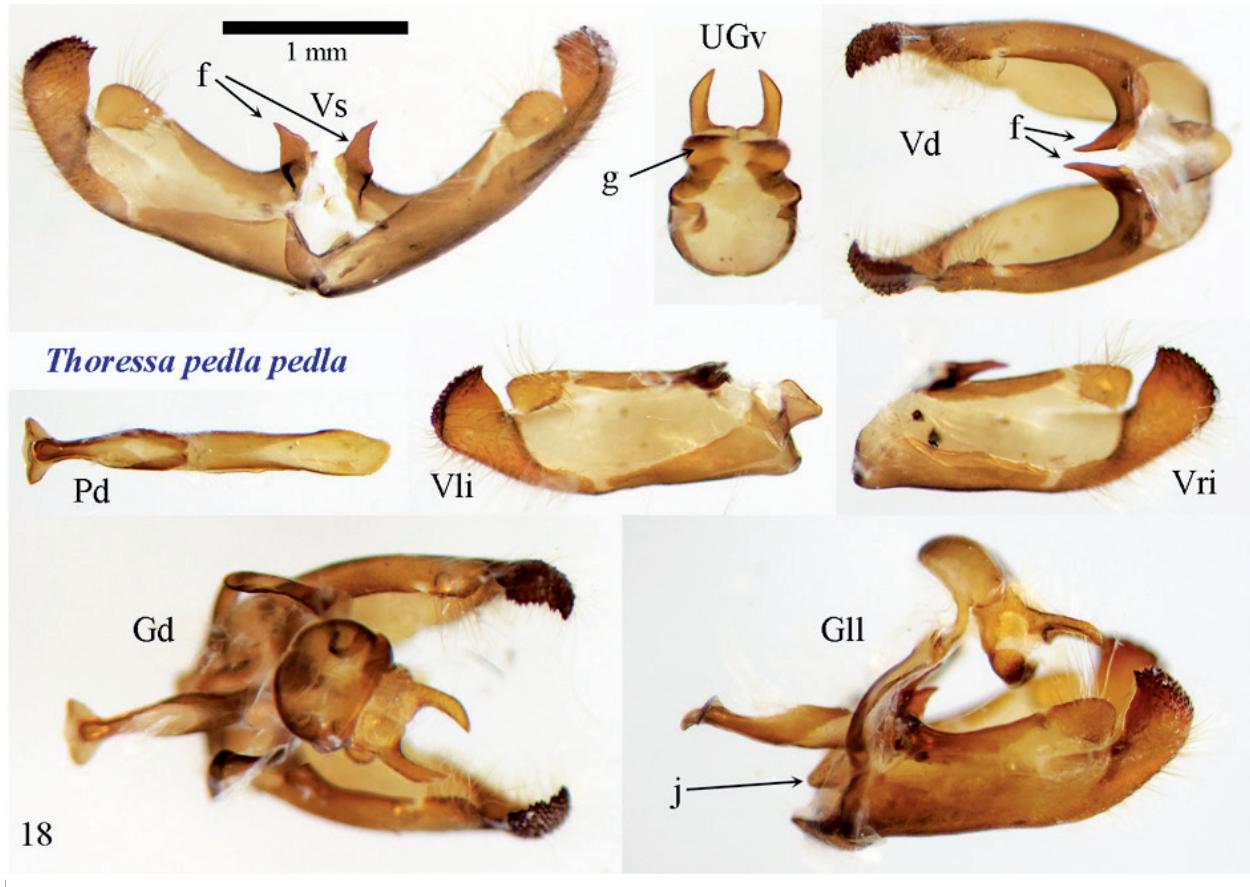


Fig. 20: ♂ genitalia of *Thoressa yingqii* HUANG, 2011, consisting of whole genitalia in dorsal view (Gd), of valvae in dorsal view (Vd), of aedeagus in lateral (Pl) and dorsal (Pd) views, of uncus plus gnathos in ventral view (UGv), of whole genitalia in right lateral view (GrL), and of whole genitalia in left lateral view (Gll) at same scale; f (footstalk); j (juxta).



Figs. 1-17: Habitus of *Thoressa* SWINHOE, [1913] taxa at same scale. (1-7) *Thoressa pedla pedla* (EVANS, 1957); (1-3) ♂ holotype; (4-5) ♂, Tengchong; (6-7) ♀, Tengchong. (8-15) *Thoressa pedla hishikawai* YOSHINO, 2003; (8-9) ♂, Weixi; (10-11) ♂, Weixi; (12-13) ♀, Weixi; (14-15) ♂, Zhongdian. (16-17) *Thoressa yingqii* HUANG, 2011; (16) ♂, Fengxian, Shaanxi; (17) ♀, Huixian, Gansu.



Thoressa pedla hishikawai

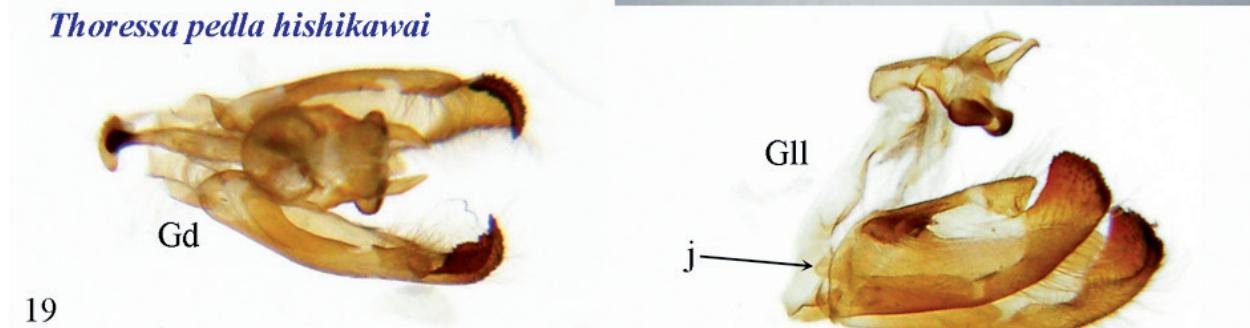


Fig. 18: ♂ genitalia of *Thoressa pedla pedla* (EVANS, 1957), consisting of valvae spread in inner view (Vs), of uncus plus gnathos in ventral view (UGv), of valvae in dorsal view (Vd), of aedeagus in dorsal view (Pd), of left valva in inner lateral view (Vli), of right valva in inner lateral view (Vri), of whole genitalia in dorsal view (Gd) and of whole genitalia in left lateral view (Gll) at same scale; f (footstalk); g (gnathos); j (juxta).

Fig. 19: ♂ genitalia of *Thoressa pedla hishikawai* YOSHINO, 2003, consisting of whole genitalia spread (Gs), of whole genitalia spread and flattened on slide (Gsf), of aedeagus flattened in dorsal view (Pd), of whole genitalia in dorsal view (Gd), and of whole genitalia in left lateral view with aedeagus removed (Gll) at same scale; f (footstalk); g (gnathos); j (juxta).